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DEVELOPMENT OF AN INSTRUMENT FOR ANALYZING THE CHARACTERISTICS OF THE SOUNDTRACKS OF CHILDREN'S TELEVISION PROGRAMMES

[Elaboración un instrumento para conocer las características de la banda sonora de la programación infantil de televisión]

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Abstract

Television is one of the most important elements in the construction of the musical and audible reality of children and teenagers. It offers a selected and edited version of a musical environment, with an indisputable level of communicative and patrimonial influence. This paper is part of a research project that sets out to know what children are listening to in children's television programming, in a sample of Latin American television coverage. The general objective has been to establish the parameters of everyday listening experiences and to create an instrument which is able to determine the objective elements of listening environments through their most notable medium: the soundtrack of children's television programmes. Here we present the creation and validation process of such an instrument. The more important elements are the consensus process, since we attempt to validate the instrument within the Latin-American context and decision-making because of the inherent characteristics of the music as variable analysed, since sound develops over time, and this makes an accurate classification of it very difficult.

Keywords

Soundtrack, quantitative analysis, validation, observation, classification, television, listening.

Resumen

La televisión es un elemento destacado en la construcción de la realidad musical y sonora del niño y del adolescente que ofrece, como totalidad, una versión seleccionada y editada del entorno musical. El artículo que presentamos forma parte de un proyecto de investigación que trata de conocer qué escuchan los niños en la programación infantil de televisión en una muestra latinoamericana. El objetivo general ha sido establecer los parámetros de la escucha televisiva y determinar sus elementos objetivos. Lo que presentamos en este artículo es el proceso de elaboración y validación de dicho instrumento. El proceso ha tenido como elementos generadores el consenso por el ámbito de aplicación con validez latinoamericana y la toma de decisiones, por la naturaleza de la música como variable de análisis y las características del sonido, cuyo desarrollo en el tiempo requiere formas específicas de clasificación.

Descriptores

Banda sonora, análisis cuantitativo, validación, observación, clasificación, televisión, escucha.

The soundtrack

The four components of the sonic experience, i.e. music, sound, silence and listening,

have been explained by Art Theory and have played a prominent role in the vanguard of both music and the plastic arts. They have received far less attention from Communica-

tion and have been largely ignored by general and musical education. Nonetheless, other concepts that are so familiar to us when we speak of sound in relation to the mass media (such as recorded sound, loops, simultaneity and sound manipulation, editing, changes of speed, phonetic language expressed by objects, as well as others like stretching, compressing, overturning or manipulating) have been part of avant-garde art in the 20th century.

A number of different studies have been conducted on the influence of television (Silverstone, 1996; Morley, 1996; García-Muñoz, 1997; Vargas and Barrena, 2003, for example) in a variety of contexts, including children's television in Spain (Vallejo-Nágera, 1987; Ferrés, 1994; Orozco, 1996; Aguaded, 2005; De Moragas, 1991; Reig, 2005). These latter authors have researched the television viewing habits of children and teenagers, and conclude that they can often be the cause for some concern. Likewise, Pintado considers that, since it first became part of the market, the main aim of television has been to produce audiences rather than contents (Pintado, 2006). Of all the studies that were consulted, the *Pygmalion* Report on the impact of television in childhood, drawn up by Del Río, Álvarez and Del Río (2004), is perhaps the one that provides most information about Spain. It also allows us to put together an overall view in order to integrate the problem of television listening within a cultural perspective of child development. Among the many other points they make and as a long-term goal, these same authors advocate the creation of children's television programmes that take cultural elements as their reference.

We are interested in looking at music from the listener's side, and on television this takes the form of the soundtrack of children's television programmes. Very little research has been conducted on the cognitive, social and communicative aspects of music on television, despite the role it plays in modelling and constructing the reality of children and

teenagers. Sound is part of the auditory system and one of the first senses to become active in humans. Listening to Spanish television soundtracks has a number of undeniable repercussions and even more so if we bear in mind that the country ranks second in terms of television viewing in Europe. According to the *Libro Blanco: La educación en el entorno audiovisual, 2003* (White Paper on Education in the Audiovisual Environment), which was produced by the *Consejo Audiovisual de Cataluña* (Audiovisual Council of Catalonia – CAC), the average Spaniard watches TV for 218 minutes per day. From the cognitive perspective, the *Pigmalión Report* (Del Río, Álvarez and Del Río, 2004) embraces music (although not explicitly) when it speaks of concepts like attention, rhythm, sound density, the need for slower and more balanced styles, reflexivity or audiovisual literacy. The report makes three recommendations: 1) Researching and looking for alternatives; 2) Including material on media literacy; and 3) Restructuring the educational curriculum. Del Río, Álvarez and Del Río (2004) speak of the 'television diet' as an accumulation of contents that produce both specifically sought, or primary, effects (such as those generated by advertising, entertainment or information) and also secondary effects, which are brought about intentionally (such as those designed for educational purposes or for children). Their consequences, according to the report, include effects on attention, academic performance, reading and writing, and narrativity, among others.

Television as a construct of musical and sound reality

For children today, television has become an important means of constructing reality (together with their direct experience), although the increasingly common tendency to blend different fictional and non-fictional genres means they also have to face a series of new problems (Del Río, Álvarez and Del Río, 2004). Music plays a part in the construction of that inner world and hybridisation

takes place effectively by means of sound because the world is often replaced by music and the qualities of sound take the place of things (Porta, 2007).

The Pygmalion Report (Del Río, Álvarez and Del Río, 2004) states how addiction to television does not generate audiovisual competencies per se, except for those of a low level. High level literacy skills gain from an education that revolves around verbal, audiovisual and other forms of literacy. Thus, it is necessary to conduct research that is capable of objectively identifying the elements of listening present in the television diet as one of the components of sense, and this is something that is still largely lacking in syllabus design. Only literacy education that takes into account different languages and forms of expression (including music) will be able to cope with the changes in the forms of representation that have arisen in contemporary languages.

Our subject matter is interested in meaning. Hence, we therefore ask ourselves whether the soundtracks of children's television programmes can be reduced to semiotic systems and models or if there will always be gaps, spaces and cracks through which meaning (as a sign that points to a referent) seeps out or accumulates and stagnates. Juan Reyes calls these cracks Islands of Entropy (Reyes, 2006). From a neighbouring perspective, i.e. that of education, Vygotsky speaks of the social construction of consciousness (Vygotsky, 1981:162). The answer, which goes well beyond the scope of this paper, is of a semiotic nature because we are interested in the meaning and the sense of the music that children listen to in the most everyday of environments in Hispanic culture, that is to say, television. Thus, we need to undertake a research process that begins with the creation of a hitherto inexistent listening template and then goes a step further and selects samples to which it can be applied and interpreted. The results of this process will provide educa-

tional alternatives in a forever-changing sonic environment.

In this section we are reviewing the literature on the multifaceted phenomenon of listening in the everyday environment. This sound habitat belongs to contemporary popular music and its boundaries are felt to be blurred and overlapping in different areas of communication. Nevertheless, at a descriptive level we could say that, today, this music of everyday life is transmitted in an oral, unwritten way, often makes use of a foreign language, and is distributed on a massive scale to heterogeneous cultures. The whole communicative environment of the turn of the millennium is steeped with it and it incorporates elements of sound engineering and communication. Its importance is based on the selection and arrangement of the elements of musical language or, in other words, on the combination between what is said, what is not said, how, when and to whom it is said (Porta, 2004b).

The complexity of the environment and its highly multidisciplinary profile oblige us (as the first task and the object of this paper) to select our field of study and brings us back again to the research question 'How can we know what children listen to on television?'.

1 Need for analysis templates

1.2 Instruments for listening to the sonic environment

The different studies carried out on children's TV reveal television contents with a high level of exposure, which use seductive advertising strategies and have an undeniably powerful communicative influence that is exerted through the different languages that are used. The conclusions to the Pigmalión Report (Del Río, Álvarez and Del Río, 2004) state that there is no critical mass regarding the audiovisual subject area in Spain, and that this is even more apparent when we speak of soundtracks. The systematisation required to

provide our work with a solid grounding in fact displays a gaping void when it comes to the acoustic context of children. The studies that can be found in the literature (mostly laboratory experiments) cover artificial realities for groups that have been defined in terms of their learning traits or in high-risk populations in schools (Burnard, 2008; Ward-Steinman, 2006); health and eating habits, which link music, advertising and consumption (Ostbyeit, 1993; Koivusilta, 1999); the relationship between music and reading skills (Register, 2004); and the relationship with violence (Peterson and Newman, 2000), among others. The need for objective tools can only be met by creating scales for measuring a new sonic environment. This problem of measurement instruments in music is not new, however, and the issue becomes even more acute when we expand the concept to the everyday sonic environment.

Some architects have spoken out on the peculiarity of the sonic environment and the need to take it into account. According to these professionals, each fragment of the urban fabric has its own characteristic sound traits that tell us about its spatial qualities, its transient comings and goings, and the uses it is put to by those that inhabit it. This is why they say that these traits are what make up its ordinary, everyday identity. We therefore need to listen to the music of our everyday environment again and to do so we have to use language and instruments of analysis developed by the discipline of Music itself (Atienza, 2004).

Over the last 40 years, different interdisciplinary efforts have worked on the border between different areas of knowledge and disciplines. In the 1960s and 1970s, two different approaches to sound analysis appeared. Pierre Schaeffer's sound object, on the one hand, was based on a phenomenological analysis of the audible universe that focused on the modes of auditory perception (Schaeffer, 1966). On the other hand, Robert Murray Schafer's notion of *soundscape* deals with what we might call the 'compositional'

representation of the sonic environment. He also calls for new solutions to new requirements when he says that the various fields of sound studies are in need of what amounts to a revolution. Such a revolution would consist in unifying disciplines that deal with the science of sound and those that are concerned with the art of sound. The result would be the development of the interdisciplines of acoustic ecology and acoustic design (Schaefer, 1977). Yet, Atienza criticises this approach and states that the sound object, which is destined to be the elemental unit of a 'solfeggio of sound', lacks a suitable scale for analysing configurations that are as complex as urban ones (Atienza, 2004). The concept of soundscape also presents a number of limitations when it comes to analysing urban contexts, in this case deriving from an excessively long working scale (Augoyard and Torgue, 1995).

From our position as educators, and in line with Atienza, we wish to stress that a sound effect is not an object in itself and sound material is not to be dealt with as if it were an object, but as a medium. The questions about sound itself, which were addressed by Pierre Schaeffer and Robert Murray Schafer, therefore continue. It is not our aim here to study sound as an end in itself, unattached to any kind of context: to the contrary, the study is conducted in relation to a precise point in time and space. Indeed, Jean-François Augoyard and the Cresson laboratory (Augoyard and Leroux, 1989) can be considered the heirs of and complements to the two previously mentioned authors. This line of research arises from the need to find an interdisciplinary tool that fits the scale of an urban configuration and allows dimensions other than purely aesthetic ones to be incorporated (Atienza, 2004). This concept can be used as a way to obtain a qualitative description of the everyday sound experience. The effect describes the links that exist between the physical and human dimensions of the environment, and between the sound space, our perception and the way we represent it. The Cresson laboratory in Grenoble estab-

lishes a survey protocol in which it indicates a shift in paradigm that rests upon three types of key notions: those related to the description, those related to the trajectory and those related to the experience. The observation work carried out by this laboratory has used a number of parameters that have been expanded to include contextual data about sound, as well as others of a more private, experiential, nature. Thus, we do not speak of just music or sound art – we also add the notion of 'located'. But, in order to understand how this located sound material can be perceived, first we have to know what sound qualities such configurations possess. Listening to television is, in terms of exposure time, the largest of contemporary sound habitats. Television music consists of a musical organisation adapted to the medium and a selection of styles based on advertising strategies and music imported from the dominant North American industrial or highly competitive Japanese manga cultures. And, in this context, the proximity contents (De Moragas, 1991) and listening as a communicative, aesthetic and patrimonial educational value, as set out in different Spanish laws (BOE, 2003, 2006a and 2006b), appear to be called into question.

This is the general framework of our object of study, but empirical research requires the use of instruments. Its most notable content is what is listened to in the contemporary sound habitat – high impact, persistent material of an industrial origin – together with the use of musical, sound and communicative formulas adapted to the medium of television. Thus, from the standpoint of musical education we can justify the need to create a (still inexistent) instrument for measuring listening that enables us to search for educational alternatives in an objective way. To achieve this, it is necessary to analyse the contents of television soundtracks with the greatest strength, impact and continuity, as well as what they are missing, which is as vital as what is present.

The results of this research can be used as a guide for viewers, production companies, TV networks and educators. Moreover, policies aimed at preserving, generating and maintaining macro- and micro-contexts are necessary so that children's everyday environment is adapted to meet the highest possible levels, which are proximity contents (De Moragas, 1991; Porta, 2004b). Finally, we believe that the study will be of use in future reconstructions of curricular design.

1.3 Trajectories, sequences and timelines

Music is produced in time, and our instrument therefore needs to be set in time in a twofold sense, i.e. what is listened to and where it is located. The first issue to be addressed is to delimit the sequence so that it can be observed and analysed objectively, without any kind of ambiguity. The architecture-based survey protocol developed by the Cresson laboratory offers us some guidance by defining three dimensions to be considered when observing the listening process: description, trajectory and experience. In our case we are going to establish the first two so as to be able to gain access to some of the characteristics that make up the complex cognitive, social, cultural and affective framework of the auditory experience.

DESCRIBE: What is listened to

THE TRAJECTORY: When it is listened to

EXPERIENCE: Where it is listened to
(Porta, 2007)

2 The method and codification

This work is part of a wider study that aims to determine what children listen to in a sample of children's television programmes taken from the Hispanic culture. The theoretical framework of reference for interpreting these soundtracks (in a semiotic way) is based on the model by Eco and Cantarell (1978). In his introduction to *The Absent Structure*, Umberto Eco states that semiotic research only makes sense if the structure of the field is

assumed to be an imprecise entity which the method seeks to clarify (thereby continually giving rise to contradictions within the field). It makes no sense if the structure that has been established by deduction is considered to be 'true', 'objective' and 'final'. Hence, he proposes the following as a methodology:

1. *Compare definitions*
2. *Establish the semiotic field* in terms of vastness and disorder
3. *Create a research model that is submitted to contradiction*

By this he says, if the operation were successful, something that seems almost a utopia would be achieved, i.e. "maintaining the complexity of the field while giving it a structure and, therefore, transforming the field into a *system*".

Thus, and following on from Eco, our *working hypothesis* is to transform the field, the children's soundtrack, into a listening template system.

In *The Absent Structure* (Eco and Cantarell, 1978), Umberto Eco states that "the study of mass communication proposes a unitary object inasmuch as it claims that the industrialisation of communications changes not only the conditions for receiving and sending out messages but [...] the very meaning of the message (which is to say that block of meanings which was thought to be an unchangeable part of the message as devised by the author irrespective of its means of diffusion)".

Thus, as we have outlined above, the general theoretical framework of the research, which is of a semiotic nature, is the one put forward by Umberto Eco (Eco and Cantarell, 1978), while the model proposed by Ariza (Gómez-Ariza, 2000) will be used more specifically to construct the listening template.

3 The model

The models that attempt to explain how music is represented mentally vary in terms of the range of phenomena they explain and in the units of representation they propose (Gómez-Ariza, Bajo, Puerta-Melguizo and Mazizo, 2000). One of the first problems that arises when it comes to judging these theories or putting forward new ones is how to define exactly which characteristics of music determine the way we perceive and, later, remember it. Yet, few studies have systematically reviewed each of the factors that make up music and the influence they have on the way musical information is perceived and remembered. According to Gómez-Ariza, one of the difficulties hindering this type of review is that there is no unifying theoretical framework that allows existing data to be organised. In our case, in order to find out what children listen to on television, we took the model created by these authors as our starting point. In their review of the empirical data and the theoretical explanations, they define the importance of the different characteristics of music in how we perceive and remember pieces of music. They consider musical stimuli to be composed of a large number of dimensions that combine with one another to create the complex auditory pattern that we know as music. They set out from the assumption that music and language share certain similarities in their structures and that it is therefore possible to group the different musical variables according to whether they refer to the combination of sounds (phonology), the rules of segmentation and organisation (syntax) or the meaning of the music (semantics). In this approach, the environment, the intervals and the tonality are variables that determine the combination of the sounds that make up music (musical phonology), and the rhythmic pattern, the accents and the rules of formation are essential to be able to carry out the processes of segmenting a piece of music (musical syntax). Finally, tonal hierarchies structure and organise the music as well as generating musical expecta-

tions. These latter are considered to be fundamental elements in listening and interpreting music and, together with other expressive factors such as the tempo or the timbre, seem to generate effective responses to music (the semantics of music).

The structure proposed by the model allows us to interpret children's television listening. Within this framework we have developed a table based on the categories put forward by Gómez-Ariza for studying children's television listening in a Latin American sample.

4 Procedure

The instrument that we present here was validated in four phases:

- a. the construction of the pilot template
- b. validation by a panel of experts
- c. second template
- d. interrater validation

4.1 Construction of the pilot template

The pilot template for observing the sound characteristics was developed by taking into account their most representative measurable characteristics. This led to the development of the following list of analysis variables:

1. Without music
2. With music
 - 2.a. Type of sound
 - 2.b. Voice
 - 2.c. Rhythm
 - 2.d. Type of beginning
 - 2.e. Intensity
 - 2.f. Agogic
 - 2.g. Genre and style
 - 2.h. Tonality
 - 2.i. Mode
 - 2.j. Musical structure
 - 2.k. Simultaneity of sounds

Each of these variables had several different subdivisions, giving a total of 67 different characteristics in all. This observation template was modified with the help of a panel of experts. The template that was initially proposed was revised at the *Second Research Meeting "on the soundtrack of children's television in Latin America. Variables, impacts and influences in the soundtrack heritage"* (II Encuentro investigador "Sobre la banda sonora de la televisión infantil y juvenil en el ámbito latinoamericano. Variables, impacto e influencia en el patrimonio sonoro"), held at the University of LANUS, Buenos Aires (Argentina) from 14th to 18th May 2008. The classification of some of the elements was reconsidered in several different work sessions with the aim of simplifying the observation of television listening in different countries, while also making it easier to perform comparative analyses at a later stage.

Thus, the indicator *Type of sound* (which in the initial template refers to the auditory sensation produced within us by the physical phenomenon caused by the vibration of bodies) was broken down into a series of internal constituting elements. This initial classification was later revised to allow a more objective observation and resulted in the nine items shown in the final template. Of the other elements in the template, in this section we only highlight the characteristics that underwent modification, while the others can be found in the resulting template.

The element *Rhythm* was taken to be the sequencing of sounds in time and distinguished between binary and ternary rhythms, as well as binary and ternary subdivision rhythms and blends.

Intensity is considered to be the characteristic that makes it possible to distinguish between loud and quiet sounds, in which dynamics are included as variations of intensity.

Tonality is considered to be the musical arrangement that is defined by the order of the intervals within the scale of sounds.

Mode corresponds to the different types of major, minor and other scales.

Musical structure (musical architecture or morphology) is considered to be a synonym of musical form, that is to say, the organisation of musical ideas.

Simultaneity of sound refers to the preponderances, sound planes, textures and relationships between the leading figure and the background music of the work under consideration.

4.2 Panel of experts

The first validation process involved the appraisal of experts from two areas of knowledge of vital importance to the study, i.e. methodology and content. The experts from the methodological domain worked on debugging and adjusting the process of making decisions about aspects related to the research methodology and measurements. The members of the second group, all international experts on the content of the study (i.e. Musical Education), were asked to debug and make decisions about aspects related to the subject area, i.e. music and its characteristics within the Latin American context. In order to carry out this first validation, each of the experts in Musical Education had to make a series of observations about the programmes to be analysed using the pilot template that had been designed. From the results of this first observation, the first group of experts began to detect methodological mismatches (duplications, incomplete or badly defined variables, etc.). Once the two groups had completed their work, a joint validation session was held so that they could establish methodological solutions that were appropriate to the contents.

The problems and solutions were as follows:

Methodological aspects:

1. *Level of Analysis:* The different samples of material that were listened to vary in length (whole songs, clips, etc.), which

prevented global analyses from being carried out. Obviously a clip that lasts two seconds cannot be dealt with on the same level as a three-minute song. It was necessary either to draw this distinction or make the units of analysis uniform. Thus, it was decided that the largest unit of analysis would be the phrase and if the units were smaller, they would also be analysed, but information to this effect would be stated in the header at the top of the template.

2. *Sampling:* Doubts regarding the exact aim of the analysis arose, and it was decided that its main purpose was to analyse what children listen to in children's programmes. From the foregoing it can be deduced that that listening refers to all kinds of sounds and it therefore becomes necessary to specify the sampling process, which will affect all of the programmes considered for analysis. It was therefore decided that a segment should be cut every 45 seconds throughout the whole programme in order to analyse the sound being produced in that moment (up to a maximum of five seconds). If the sound is musical, the phrase that is taking place during that segment will be analysed. If there are no phrases, whatever structure it might be will be analysed and a note added in the header. Exceptions are made in the case of songs, where the first and last phrases will be analysed in addition to the segments that are made every 45 seconds.

3. *Template:* Due to the difficulty involved in identifying some of the variables included in the template (within the units of analysis), it was decided that a category should be added in all the variables that indicated that it had not been possible to identify the level of that variable. This avoided the need to leave the variable in blank and later calculations would not be affected.

4. *Variables:* A number of mismatches were observed when it came to establishing the

sound profiles that were listened to. Most of them were due to the temporal nature of music and the presence of sound characteristics that are interconnected and dependent on the whole. This is the reason why the levels considered in the different variables were not totally exclusive. Consequently, a thorough study of each of the variables and their levels must be conducted so as to ensure that the researcher who listens does indeed mark all the variables and one, and only one, of the levels in each of them.

5. *Validation of the listening*: Due to the difficulties involved in carrying out listening sessions for this pilot study, several disagreements arose in regards to the characteristics that were listened to. It was hence decided that crossed listening sessions must be used in order to validate the results. In case of disagreement, a solution could be to try to reach a consensus or to seek the opinion of a third rater.

Aspects regarding content:

1. The term *music* is replaced by the word *sound*, since what is being sought are the characteristics of the soundtracks used in children's programmes, and this includes music and any other type of sound.
2. The pilot variable *Type of sound* is now divided into two variables: *Musical sound* and *Non-musical sound*.
3. The variable *Voice* is limited to just the genre produced by sound when it is sung, which includes the possibility of vocal groups.
4. The variable *Rhythm* is restructured as *Metre and Rhythm*, taking only the binary and ternary levels into account, and leaving room for other possible variations.
5. The variable *Type of Beginning* now includes the category *Acephalous*.
6. There is now a new variable, *Dynamics*, which was previously included in the variable *Intensity*.

7. The variable *Agogic* now includes the category *Without variation*.
8. The variable *Genre and Style*, which had 10 levels plus several sublevels, is now summarised in the new template on four levels, which include the main genres and styles and allow for the existence of possible combinations. Whether the traditional genre (if it appears) is local or foreign is also stated explicitly.
9. The variables *Tone* and *Mode* in the pilot template are now grouped together in a new variable called *Sound Organisation*.
10. The variable *Musical Structure* undergoes several significant changes. On the one hand, references to the musical structure now become units of analysis of the chosen sample, and are stated as such in the header of the new template. The rest of the levels, on the other hand, disappear except for the level called *Resolutions*, which is now included as a new variable called *Cadences*.
11. In the new template the variable called *Simultaneity of Sound* is subdivided into two new variables: *Sound Textures* and *Sound Plane*.

4.3 Second Template^[1]

The results set out in the previous section were then used to redesign the instrument, with the following analysis variables:

1. NO SOUND.
2. NON-MUSICAL SOUND. This indicator refers to sound that cannot be measured with musical parameters because it belongs to the natural or social medium.
3. MUSICAL SOUND. This refers to the sound characteristics in which musical components can be discriminated and distinguished.
4. VOICE. This indicator refers to the sound produced by the human vocal apparatus.
4. METRE AND RHYTHM.

- a. *Metre* refers to the hierarchical organisation of time levels or measures.
- b. *Rhythm* refers to the distribution of sounds on the time continuum.
- 5. TYPE OF BEGINNING.
 - a. *Anacrusic beginning*. This refers to one that starts before the phrase begins.
 - b. *Acephalous beginning*. This refers to a phrase that begins with a silence.
 - c. *Thetic beginning*. This refers to a phrase that begins on time.
- 6. DYNAMICS. This refers to everything related to the degrees of intensity of the music.
- 7. AGOGIC. This indicator refers to aspects of the performance related with the duration and, consequently, with the tempo.
- 8. GENRE AND STYLE.
 - a. *Musical genre*. This indicator refers to the category that gathers together musical compositions that share different affinity criteria.
 - b. *Style*. This refers to the form of the discourse and the particular way in which a piece is performed.
- 9. SOUND ORGANISATION. This indicator refers to the musical syntax and

the modal or tonal (major or minor) organisation of western music.

- 10. CADENCE. This refers to the process of falling to a tonal centre. The different cadences are classified as being conclusive, if they generate a certain degree of stability or rest, or suspensive, if they generate instability or tension.
- 11. MODULATION. In tonal music, this indicator refers to the process of moving from one tonality to another or the result of such a shift.
- 12. SOUND TEXTURE. This indicator allows us to gain a better understanding of spatial organisation and how it is articulated in the plane of performances, composition and analysis. Types of texture include: i) Monophonic; ii) Polyphonic: a) Horizontal polyphony; b) Vertical polyphony; iii) Accompanied Monody.
- 13. SOUND PLANE. This refers to the vocal and/or instrumental groups that intervene together and determine the situation of the different sounds, whether this is temporal, physical or related to the intention.

The layout of the instrument to be used in the pilot study was as follows:

RATER:
 RECORD:
 REGION:
 COUNTRY:
 PROGRAMME:
 SECTION (own/cartoons/advertising):
 DATE:
 DURATION: (minutes: seconds)
 UNIT OF ANALYSIS: (complete piece/phrase/semi-phrase/motive/design/others: please state)

0.	WITHOUT SOUND		
1.	NON-MUSICAL SOUND		
2.	MUSICAL SOUND	2.a. ACOUSTIC	2.a.1. chordophones 2.a.2. aerophones 2.a.3. membranophones 2.a.4. idiophones 2.a.5. mixture (specify)
		2.b. ELECTRONIC	2.a.3.1 original 2.a.3.2 imitation
		2.c. MIXTURE (specify):	
		2.d. UNDETERMINED	
3.	VOICE	3.a. SPOKEN OR SUNG	3.a.1. man 3.a.2. woman 3.a.3. child 3.a.4. group of voices 3.a.5. others (specify)
		3.b. WITHOUT VOICE (Instrumental)	
		3.c. UNDETERMINED	
4.	METRE AND RHYTHM	4.a. BINARY 4.b. TERNARY 4.c. OTHERS (specify)	
		4.d. UNDETERMINED	
5.	TYPE OF BEGINNING	5.a. THETIC 5.b. ANACRUSIC 5.c. ACEPHALOUS	
		5.d. UNDETERMINED	
6.	DYNAMICS	6.a. WITH VARIATION 6.b. WITHOUT VARIATION	
		6.c. UNDETERMINED	
7.	AGOGIC	7.a. SPEEDING UP 7.b. SLOWING DOWN 7.c. WITHOUT VARIATION	
		7.d. UNDETERMINED	
8.	GENRE AND STYLE	8.a. ERUDITE WESTERN 8.b. POPULAR (specify)	
		8.c. TRADITIONAL	8.c.1. local 8.c.2. foreign
		8.d. COMBINATIONS (specify)	
		8.e. UNDETERMINED	
9.	SOUND ORGANISATION	9.a. TONAL	9.a.1. major 9.a.2. minor
		9.b. MODAL	
		9.c. OTHERS (specify)	
		9.d. UNDETERMINED	
10.	CADENCE	10.a. SUSPENSIVE 10.b. CONCLUSIVE 10.c. TRUNCATED (CUT SHORT) 10.d. OTHERS (specify)	
		10.e. UNDETERMINED	
11.	MODULATION	11.a. MODULATES 11.b. DOES NOT MODULATE	
		11.c. UNDETERMINED	
12.	SOUND TEXTURE	12.a. HOMOPHONIC 12.b. ACCOMPANIED MONODY 12.c. POLYPHONIC	
		12.d. UNDETERMINED	
13.	SOUND PLANE	13.a. MUSIC AS LEADING FIGURE 13.b. MUSIC AS BACKGROUND	
		13.c. UNDETERMINED	

4.4 Interrater validation

The core research group is made up of researchers from Chile, Argentina, Brazil and Spain and studies television programmes from 10 public and privately-owned TV channels in those countries. But for this second step in the validation process, because collecting the information is an extremely difficult, time-consuming task, three independent raters were asked to give their expert opinions on 22 units of analysis from the same programme, which were then cross-analysed.^[2] As in other studies (Ramos, 2005), the purpose of doing this was to endorse the information gathered by these raters by demonstrating the reliability of their observations, and any discrepancies amongst them were analysed so as to improve the initial instrument.

The pilot programme chosen for use in this study was the Spanish series 'Los Lunis', broadcast on *Televisión Española's* second channel during the week 15th-20th February 2008. From this programme we took several musical elements that are representative of the sample of television shown in the chosen countries, i.e. *songs*, *cartoon series* and *advertising*. With regard to the internal musical selection, we adopted the musical phrase as our reference because it expresses a complete idea, together with its lower levels of meaning, that is to say, the musical motifs and designs (Zamacois, 1968).

The resulting selection was as follows:

<p>SONG 1 <i>Un mundo mejor</i></p> <p>1.- FIRST PHRASE from 11" to 23"</p> <p>2.- 1st SEGMENT from 1'08" to 1'20"</p> <p>3.- 2nd SEGMENT from 1'40" to 1'52"</p> <p>4.- Last phrase from 2'18" to 2'32"</p> <p>5.- Complete piece</p> <p>SONG 2 <i>Oh, Lulú</i></p> <p>1.- FIRST PHRASE from 15" a 32"</p> <p>2.- 1st SEGMENT from 1'28" to 1'47"</p> <p>3.- Last phrase from 1'47" a 2'18"</p> <p>4.- Complete piece</p> <p>SONG <i>Estoy como un queso</i></p> <p>1.- FIRST PHRASE from 18" to 32"</p> <p>2. 1st SEGMENT from 1'21" to 1'39"</p> <p>3.- Last phrase from 2'02" to 2'39"</p> <p>4.- Complete piece</p>	<p>SONG <i>Soy rancherita</i></p> <p>1.- FIRST PHRASE from 8" to 22"</p> <p>2.- 1st SEGMENT from 1'13" to 1'27"</p> <p>3.- Last phrase from 1'59" to 2'13"</p> <p>4.- Complete piece</p> <p>SONG <i>Que me fallen las palabras</i></p> <p>1.- FIRST PHRASE from 12" to 35"</p> <p>2.- 1st SEGMENT from 1'32" to 1'57"</p> <p>3.- Last phrase from 2'27" to 2'54" CODA 3'43"</p> <p>4.- Complete piece</p> <p>ADVERTISING <i>In my Pocket</i> Record of the whole commercial</p> <p>CARTOONS <i>Berni</i>. One segment every 45" from the start of the episode (without opening credits)</p>
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Given the dichotomous nature of the observational data that were collected, the concordance index was calculated from the percentage of agreements over the total number of expert opinions for each variable. Thus, the overall results of the expert opinions for this phase were the following:

Total agreements (the three raters gave the same expert opinion): 69.70%

Partial agreements (two of the raters agreed and the other disagreed): 28.03%

Disagreements (the three raters pointed out different characteristics): 2.30%

On applying the chi-square test, these results displayed 99% significance in the degree of total agreements when compared with the partial and no agreements. The template can therefore be considered to offer a high degree of reliability with a percentage of interrater agreement of 88.38% (i.e. out of a total of 792 expert opinions, 700 of them agreed).

In addition, we also believe that it is important to underline the fact that the category '*undetermined*' was not indicated in any of the cases. In principle, then, the meaning and structure of the units of analysis can be considered to be sufficient.

Nevertheless, in this regard, we must also remember that the sizes of the units that were used are not comparable. Complete pieces had to be summarised by each of the raters and their ability to do this could vary with the addition of a much greater subjective component than when the musical phrase was taken as the unit.

Hence, we also decided to analyse the two aspects separately in order to establish whether the template could be equally valid regardless of the size of the sample unit.

The results for the 16 minimum units of analysis that were taken into consideration (musical phrases) were as follows:

Total agreements (three agreements): 69.27%

Partial agreements (two agreements and one disagreement): 28.65%

Disagreements (three disagreements): 2.08%

And for the maximum units (complete pieces):

Total agreements (three agreements): 70.83%

Partial agreements (two agreements and one disagreement): 26.39%

Disagreements (three disagreements): 2.78%

On applying the chi-square test, no significant differences were observed for a confidence level of 99%, which appears to show that the template works in almost exactly the same way regardless of the size of the unit of analysis.

The next aspect to be taken into account is the individual level of each variable, that is to say, the behaviour of each variable in the expert opinions provided by each rater. Since no significant differences were found among the sizes of the units of analysis, the analysis was carried out globally:

Variable	% Total Agreement	% Partial Agreement	% No Agreement	Degree of concordance	Variable
Type of sound	27.27	54.55	18.18	63.64	Equivocal
Voice	63.64	27.27	9.09	81.82	Equivocal
Metre and rhythm	81.82	18.18	0.00	93.94	Unequivocal
Type of beginning	72.73	27.27	0.00	90.91	Fuzzy
Dynamics	100.00	0.00	0.00	100.00	Unequivocal
Agogic	63.64	36.36	0.00	87.88	Fuzzy
Genre and style	40.91	59.09	0.00	80.30	Fuzzy
Sound Organisation	81.82	18.18	0.00	93.94	Unequivocal
Cadence	31.82	68.18	0.00	77.27	Fuzzy
Modulation	90.91	9.09	0.00	96.97	Unequivocal
Sound Texture	81.82	18.18	0.00	93.94	Unequivocal
Sound Plane	100.00	0.00	0.00	100.00	Unequivocal

Thus, as far as the percentage of agreements is concerned (first three columns), it can be seen that there are three groups of variables that have each worked differently.

First of all, there is the group of variables that we shall call *unequivocal*, that is to say, the ones in which there was total agreement in more than 80% of the cases. Here we find six variables altogether (50%), i.e. 'Metre and Rhythm', 'Dynamics', 'Sound Organisation', 'Modulation', 'Sound Texture' and 'Sound Plane'. These variables apparently work in a wholly satisfactory way and therefore do not need reviewing.

Second, we have a group of variables we shall call *equivocal* and which are 'Type of sound' and 'Voice'. These are the only cases in which some total disagreements were observed, especially in the variable 'Type of sound'. Here, the fact that the percentage of partial agreements is also much higher than that of total agreements means that they need reviewing. The case of the variable 'Voice' also requires a detailed analysis because of the extreme agreement values it offers.

Lastly, we find the group of variables in which, although there are no longer any total disagreements, the percentages between the total and partial agreements are balanced or, in some cases, the partial ones are even higher. This group will be called *fuzzy* and includes four variables (33.3%): 'Type of beginning', 'Agogic', 'Genre and Style' and 'Cadence'. In these cases it would be advisable to carry out a review in order to improve the degrees of agreement in the categorisations.

As far as the degree of concordance is concerned (last column), it can be seen that it is always very high (above 80%), which again confirms the reliability of the template. Nevertheless, the variables 'Type of sound' and 'Cadence' stand out for the fact that the concordance is significantly lower than in the other variables. This makes it necessary to carry out a review in both cases, even though this need

had already been made quite clear in the case of 'Type of sound'.

Type of sound: The item is ambiguous and therefore requires better definition, and for this reason we propose distinguishing between acoustic, electronic and hybrid sounds, and adding a new item (timbre) so that the timbral indicator is no longer an exclusive acoustic condition. This will enable us to substantially improve our measuring instrument, which has this section as one of the most significant indicators of sound qualities in the world of television. Nonetheless, we must also highlight the fact that it is very difficult to recognise the nature of certain sounds just by listening to them, except in extreme cases of very poor quality electronic imitation sounds and the original electronic ones. In any case, detecting these extremes is a valuable element to be determined in our analysis of the sonic environment. Knowing whether a musical sound from television is acoustic, electronically synthesised or original is a crucial factor, especially when we suspect that the imitated sound is being presented fraudulently as the real thing, without any kind of reference being made to the original.

Cadences: The solution that was proposed consists in replacing the item by 'Ends on a cadence', with three options: Yes, No, Truncated. If the answer is affirmative, specify the last three notes or chords of the selection being analysed.

Type of beginning: State the rhythmic figures of the opening in the first bar, only if a review is needed.

Agogic: Compute any variation in the speed, regardless of its degree or duration in the work; we therefore recommend, if necessary, the use of a metronome in the analysis.

Genre and style: This indicator contains a component that is not very objective insofar that it depends on the referents and classificatory schemas of the observer. The results of the research will be used to gather large selections

of styles and, more especially, will bring us a little closer to the construction of another evaluation instrument that has still to be developed, i.e. the selection of the styles used in the soundtracks of children's TV programmes and their relationship with each local acoustic heritage and that of Hispanic culture.

5. In conclusion

This paper attempts to systematise knowledge about the most everyday environment available to children today, i.e. television. Despite the importance and repercussions it has as an element shaping the culture, communication and heritage of contemporary society, we have no observation instruments with which to find out what children listen to on television and what musical elements television itself uses. In the same way, we also seek an answer to the question as to which of these elements take local or foreign musical proximity contents as their referents and, consequently, what effects globalisation is having as far as musical and acoustic matters are concerned.

The research project on listening in the everyday sonic environment in the Hispanic culture spans a wide range of aspects and comprises a number of different studies carried out to compare the soundtracks of television programmes from the different countries involved in the project. In this paper we have described the process followed in order to create a quantitative empirical tool, which is still being revised, corrected and fine-tuned. In other words, we are dealing with the development of a tool that will allow us to observe and determine the characteristics of listening to the soundtracks of children's programmes.

This was carried out from an educational perspective that observes and questions the sonic environment with the aim of gathering arguments that can help to modify cultural policies about television. They could also be used to relocate and endow music with a higher linguistic, communicative and patrimonial value in education, as well as to propose

modifications to present and future curricular designs.

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NOTES

[1] These indicators and their definitions were discussed and agreed at the *II Encuentro investigador sobre "La banda sonora de la televisión infantil y juvenil en el ámbito latinoamericano. Variables, impacto e influencia en el patrimonio sonoro"*, held at the University of LANUS, Buenos Aires (Argentina) from 14th to 18th May 2008.

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